

JFSP Project Highlights

Research Supporting Sound Decisions

May 2005



The JFSP, a partnership of six federal wildland fire and research organizations, provides scientific information and support for fuel and fire management programs.

JFSP Contacts

Erik Berg
Program Manager
208-387-5349

Becky Jenison
Program Assistant
208-387-5958

Tom Wordell
Fire Technology Transfer
Specialist
208-387-5865

jfsp.nifc.gov

A Regional Experiment to Evaluate Effects of Fire and Fire Surrogate Treatments in the Sagebrush Biome

Background

The Joint Fire Science Program recently approved this substantial research effort in the Sagebrush Biome as a companion project to one approved several years ago that focuses on dry forests nationwide. This project is funded for \$12,952,128 over a 5 year period with an additional \$3,692,213 being contributed by participating research organizations. This could very well be the largest research project in history that focuses on the Sagebrush Biome, with direct benefit to the BLM.

Collaborators participating in this research include: BLM, federal scientists with the USGS-Boise and Corvallis; USFS, Rocky Mountain Research Station, Reno; USFS, Pacific Northwest Research Station, La Grande; The Agricultural Research Service, Boise; and academic scientists with Utah State University, University of Nevada-Reno, Brigham Young University, University of Idaho, and Oregon State University.

Participating BLM field offices include: Lakeview, Burns, Klamath, and Vale in Oregon; Shoshone and Owyhee in Idaho; Ely, Elko, and Battle Mountain in Nevada; and Salt Lake, Cedar City, and Filmore in Utah. Participating national forests include: Humbolt-Toiyabe in Nevada, and Wasatch-Cache in Utah. Participating wildlife refuges include: Hart Mountain in Oregon.

This project is funded for \$12,952,128 over 5 years, with an additional \$3,692,213 contributed by participating research institutions, making it the largest single research project ever funded that is focused entirely on the sagebrush biome.

Project Goals

The project will evaluate effects of fire and fire surrogate treatments that are designed to reduce fuel and to restore sagebrush communities of the Great Basin. The study has several features that make it an ideal management-research collaboration, because it will: 1) provide managers with improved information to

restore ecological communities that is relevant across the 100+ million acres of the sagebrush biome; 2) match the temporal and spatial scales at which managers operate; 3) reduce management risk and uncertainty of catastrophic wildfire to the greatest degree possible; and 4) provide managers with information that would allow them to better understand tradeoffs inherent in the choice of management alternatives. The need for such an experiment is evidenced by the profound changes in fire regime experienced in the Great Basin in the past 150 years, coupled with the lack of information available to managers on the consequences of methods they might use to reduce fire risk or to restore more desirable plant communities and fire regimes.



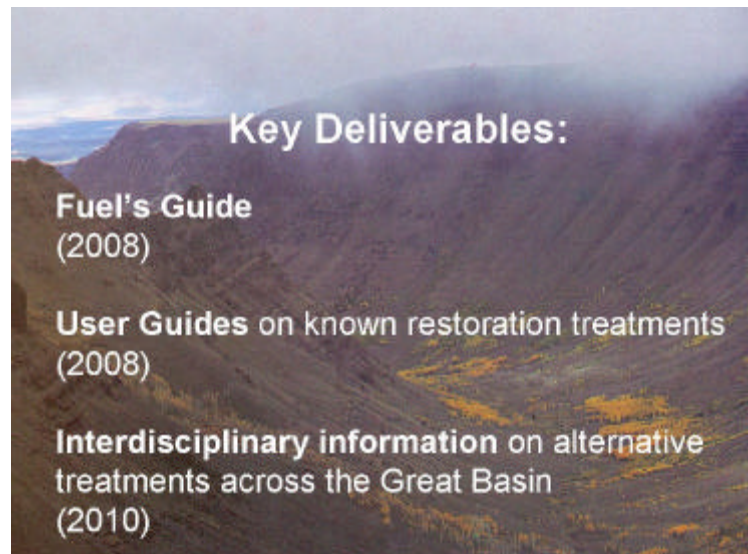
Objectives: The study objectives are to:

- (1) Identify the abiotic and biotic thresholds that determine sustainability of big sagebrush plant communities in sagebrush-steppe and sagebrush semi-desert environments, specifically related to threats posed by cheatgrass and pinyon-juniper invasion.
- (2) Assess the ecological effects of fire and fire surrogates on big sagebrush communities at risk of crossing a threshold of conversion to cheatgrass or pinyon-juniper, beyond which restoration may be difficult or logistically infeasible.
- (3) Document how fuel loads change across vegetation treatments and ecological conditions in relation to the objectives above.
- (4) Portray the ecological, economic, and socio-political trade-offs and treatment effects of no action, applying only fire and fire surrogate treatments, and restoration treatments in these sagebrush communities.
- (5) Identify and measure environmental benefits affected by conversion to cheatgrass and pinyon-juniper systems, and identify induced changes in welfare to human populations.
- (6) Provide insight and guidance regarding use of our results for effective multi-species and multi-scale planning as a part of ecosystem management of sagebrush communities in the Great Basin.

Methods: Treatments to be tested include prescribed fire, mechanical, and herbicides. Treatments will be applied and tested across a wide variety of sites across the Great Basin, which will provide a much better understanding of the 'conditional' response to treatment.

The project is fully interdisciplinary, with ecological (fuels, vegetation, soils, hydrology, wildlife), economic, and socio-political components. The combined ecological, economic, and socio-political approach provides a practical focus on maintaining sustainable systems under multiple use management guidelines for public lands. This approach is especially important in circumstances where decisions regarding public lands today can reduce the probability of potentially irreversible losses that would affect human populations for generations.

Key Deliverables Key deliverables include a 'Fuel's Guide', which will characterize fuel beds for a wide variety of ecological and vegetation types, and a set of three 'User's Guides' that will be developed from literature syntheses, one each for sagebrush, pinyon, and juniper-dominated systems. The User's Guides will contain the latest information on how these systems are known to respond to available treatments, and will thus allow managers to make more informed decisions as they consider how to apply treatments under a wide variety of conditions. Information from the current experiment will then be used to craft second editions of the User's Guides toward the end of the study period.



Project Coordinator: James D. McIver, Research Ecologist, Forestry and Range Sciences Lab, PNW Research Station, La Grande, Oregon

A copy of the full study plan is available at: http://jfsp.nifc.gov/documents/05-S-08Final_Proposal.pdf

A project overview can be viewed at: <http://jfsp.nifc.gov/documents/05-S-08Presentation.pdf>

Download a printable version of this JFSP Project Highlight at <http://jfsp.nifc.gov/news/doc/highlight.pdf>

Download previous JFSP Project Highlights at <http://jfsp.nifc.gov/news/archives.htm>